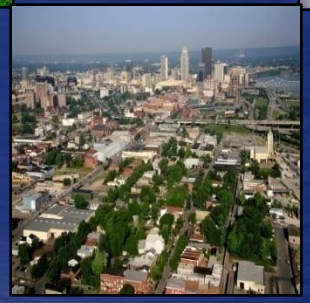
apcd
Louisville Metro
Air Pollution Control District

State of the Air: 2010

Metro Louisville



Presented by
Lauren Anderson

September 28, 2010

Active Year for Environmental Regulation

- New air quality standards have been set that will be a challenge to meet
- New regulatory programs have been proposed and finalized that will help meet those new standards
- Existing programs contributing to emissions reductions continue to be implemented
- Additional programs will likely be necessary to meet these new standards

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Criteria Pollutants

- Endanger public health and welfare
- Come from a variety of sources
- Common throughout the United States
- National Ambient Air Quality Standards (NAAQS) for these pollutants set by EPA

Carbon Monoxide

Lead

Sulfur Dioxide

Oxides of Nitrogen

Ozone

Particulate Matter

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NAAQS Attainment

September 2010 Status

Pollutant	Standard	Averaging Time	Attainment Status
Carbon Monoxide	9 ppm	8-hour	Attainment
	35 ppm	1-hour	Attainment
Lead	0.15 µg/m^3	Rolling 3-Mo Average	Attainment
	1.5 µg/m^3	Quarterly Average	Attainment
Nitrogen Dioxide	0.053 ppm	Annual Average	Attainment
	0.10 ppm	1-hour	Attainment
Particulate Matter (PM10)	150 µg/m^3	24-hour	Attainment
Particulate Matter (PM2.5)	15.0 µg/m^3	Annual Average	Nonattainment
	35 µg/m^3	24-hour	Attainment
Ozone	0.08 ppm	8-hour	Attainment
Sulfur Dioxide	0.03 ppm	Annual Average	Attainment
	0.14 ppm	24-hour	Attainment

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Actions Taken to Achieve Past NAAQS

1973 Phase out of lead in gasoline begins

1984 Vehicle Emission Testing begins in Louisville

1975 CAFE standards are issued

1993 Stage II vapor recovery program begins at Louisville gas stations

1995 Phase I of EPA's Acid Rain Program is implemented

1997 Air Pollution Control Board approves plan to reduce VOC's by 15% to achieve 1-hour ozone standard in Louisville

2000 Phase II of EPA's Acid Rain Program is implemented

2004 EPA issues the Clean Air Nonroad Diesel Rule to phase in cleaner diesel engines

2007 EPA issues the Heavy-Duty Highway Rule to reduce emissions from onroad diesel vehicles

1970 — 1990 — 2010

1970 Clean Air Act amended to require attainment with NAAQS

1974 Clean Air Act amended

1977 Clean Air Act amended

1990 Clean Air Act amended to include hazardous air pollutants, the Title V program, new source review, MACT standards, etc.

1994 Louisville adopts regulation to require reasonably available control technologies for NOx

1995 Reformulated gasoline is required in Louisville

1996 EPA bans the sale of leaded gasoline

2003 Louisville establishes Lawn Care For Cleaner Air program

2005 EPA issues Clean Air Interstate Rule

2007 CAFE Standards are strengthened

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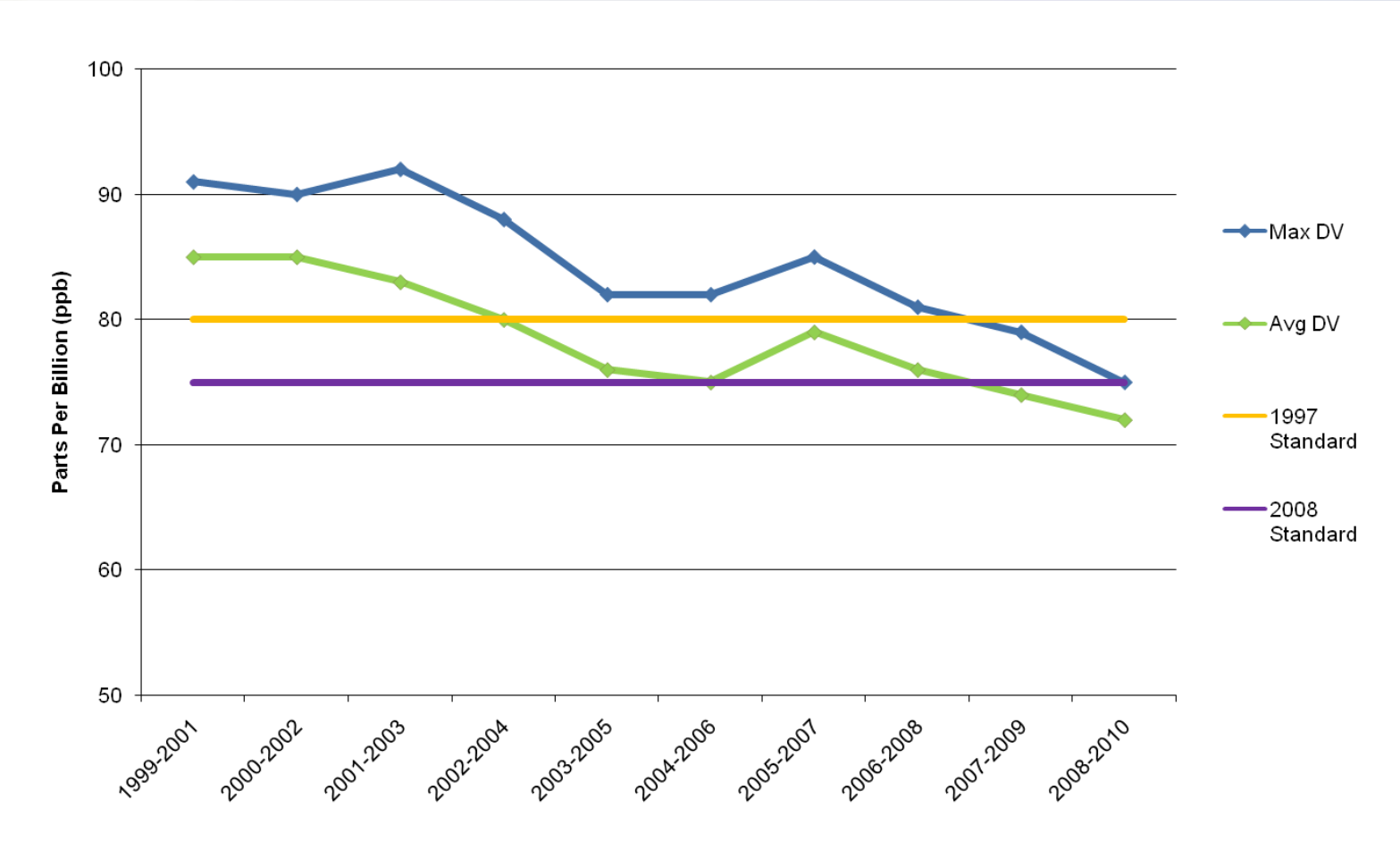
Louisville Metro 8-Hour Ozone Design Values 1999-2010



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Recent Actions:

Proposed, Final, and Underway

NAAQS Revisions

Standards strengthened for:
- Sulfur Dioxide
- Nitrogen Dioxide
- Lead

New standard proposed for:
- Ozone

New standards anticipated for:
- Particulate Matter
- Carbon Monoxide

Greenhouse Gas Regulations

- Mandatory Reporting Rule
- PSD/Title V Tailoring Rule**

Mobile Source Rules

- Light Duty Vehicle Rule
- Highway Diesel Rule
- Nonroad Diesel Rule

Stationary Source Rules

- Transport Rule
- Portland Cement MACT*
- Boiler MACT*

*Maximum Available Control Technology
**Prevention of Significant Deterioration

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NAAQS Review Process

- NAAQS are reviewed every 5 years
- EPA staff and the Clean Air Science Advisory Committee consider the latest science
- EPA requests public comment at several steps in the process
- If a NAAQS is no longer protective of public health given the latest science, a new, more stringent standard may be set

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NAAQS Attainment

September 2010 Status

Pollutant	Standard	Averaging Time	Attainment Status
Carbon Monoxide	9 ppm	8-hour	Attainment
	35 ppm	1-hour	Attainment
Lead	0.15 $\mu g/m^3$	Rolling 3-Mo Average	Attainment
	1.5 $\mu g/m^3$	Quarterly Average	Attainment
Nitrogen Dioxide	0.053 ppm	Annual Average	Attainment
	0.10 ppm	1-hour	Attainment
Particulate Matter (PM10)	150 $\mu g/m^3$	24-hour	Attainment
Particulate Matter (PM2.5)	15.0 $\mu g/m^3$	Annual Average	Nonattainment
	35 $\mu g/m^3$	24-hour	Attainment
Ozone	0.08 ppm	8-hour	Attainment
Sulfur Dioxide	0.03 ppm	Annual Average	Attainment
	0.14 ppm	24-hour	Attainment

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NAAQS Attainment

Anticipated Status

Pollutant	Standard	Averaging Time	Attainment Status
Carbon Monoxide	9 ppm	8-hour	Attainment
	35 ppm	1-hour	Attainment
Lead	0.15 µg/m^3	Rolling 3-Mo Average	Status Uncertain
	1.5 µg/m^3	Quarterly Average	Attainment
Nitrogen Dioxide	0.053 ppm	Annual Average	Attainment
	0.10 ppm	1-hour	Status Uncertain
Particulate Matter (PM10)	150 µg/m^3	24-hour	Attainment
Particulate Matter (PM2.5)	10.0 to 14.0 µg/m^3	Annual Average	Nonattainment
	25 to 35 µg/m^3	24-hour	Status Uncertain
Ozone	0.060 to 0.070 ppm	8-hour	Nonattainment
Sulfur Dioxide	0.075 ppm	1-hour	Nonattainment

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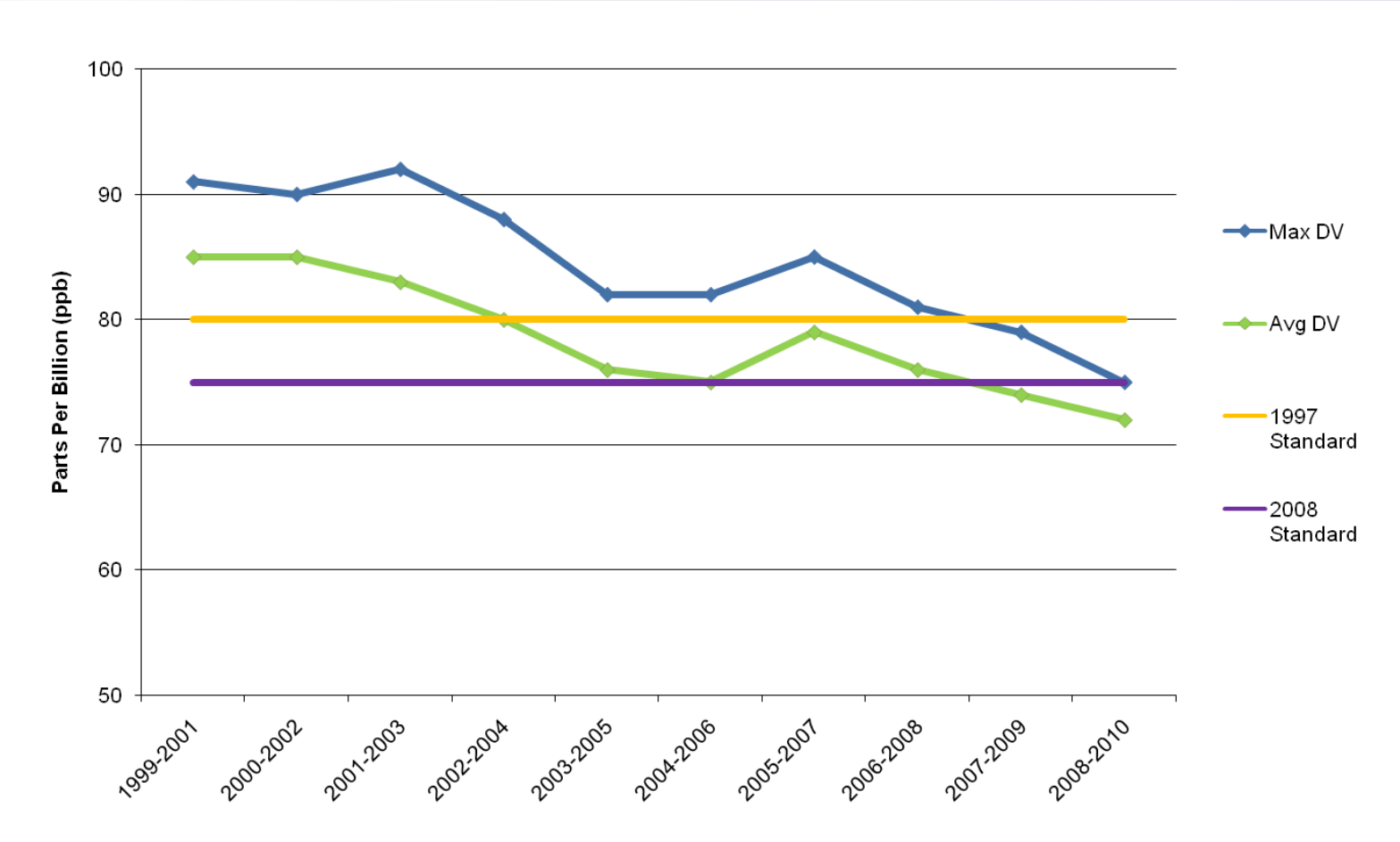
Louisville Metro 8-Hour Ozone Design Values 1999-2010



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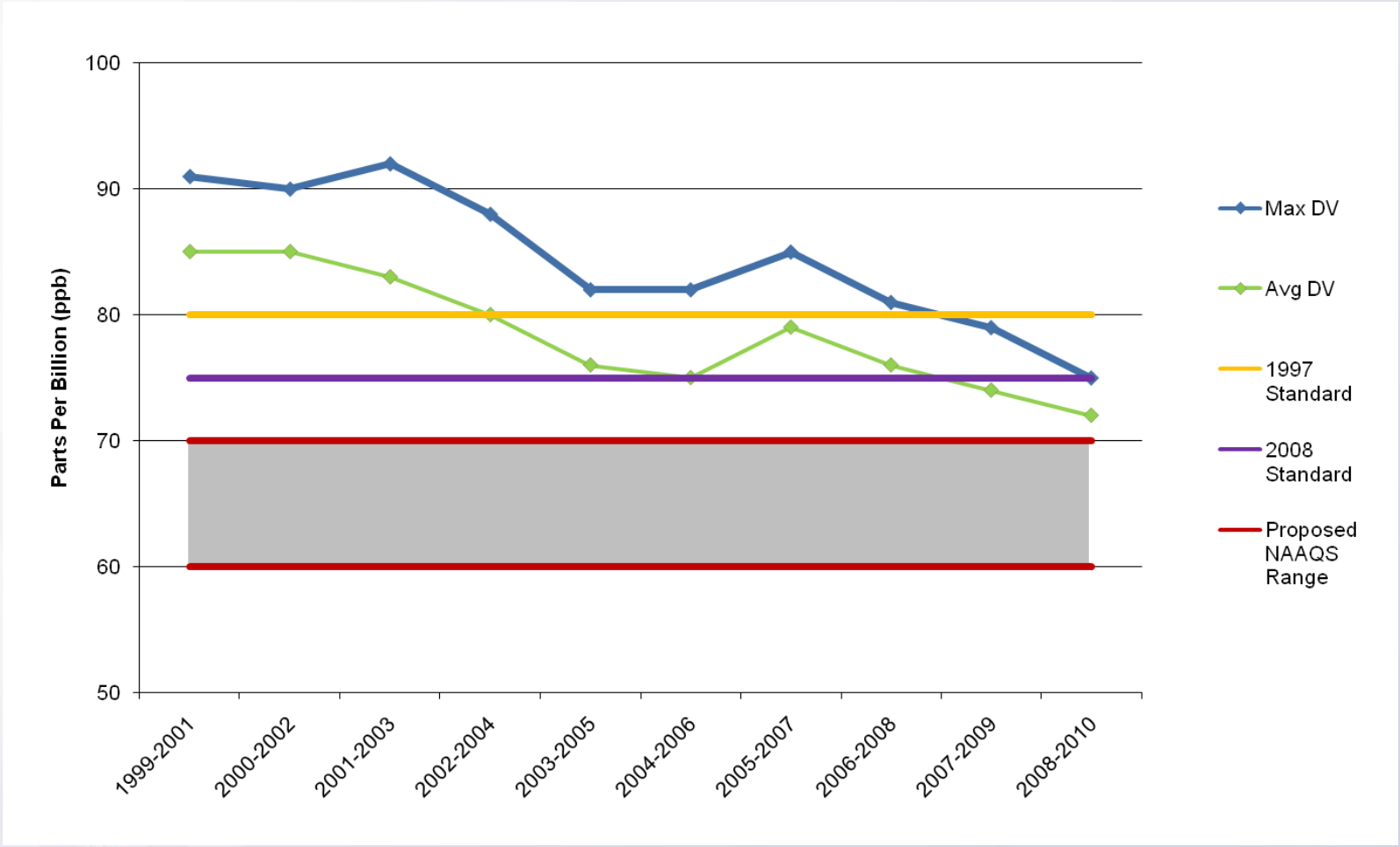
Louisville Metro 8-Hour Ozone Design Values 1999-2010



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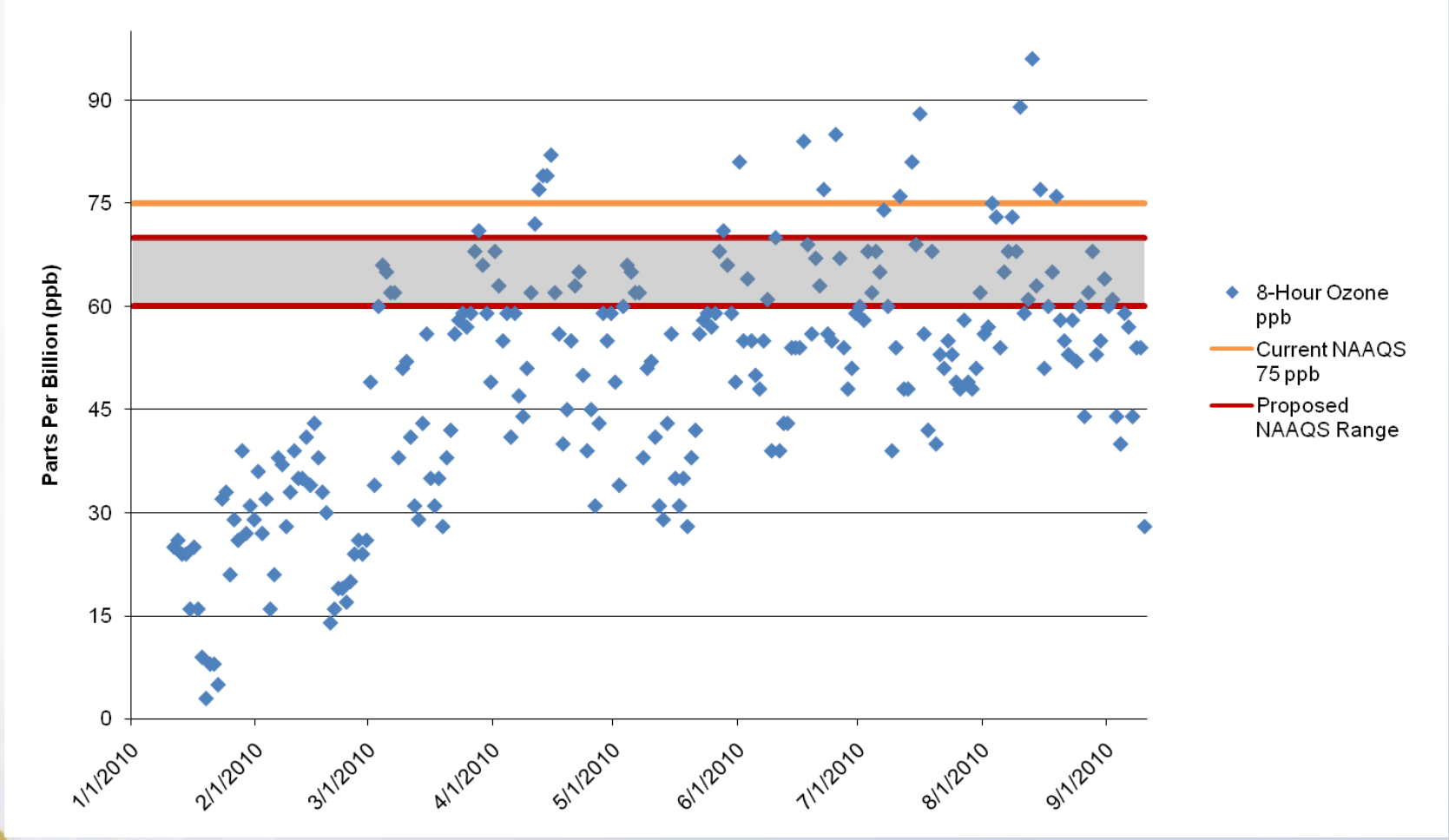
Daily Maximum 8-Hour Ozone Values
Cannons Lane 2010



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How do we meet these standards?

Emissions reductions from all sectors will be necessary

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Emission Reductions
Mobile Sources

- Federal actions
  - Corporate Average Fuel Economy (CAFE) standards
  - Tailpipe standards
  - Fuel standards
- Local actions
  - KAIRE (Kentuckiana Air Education)
  - Idle Free Louisville program
  - Lawn Care for Cleaner Air
  - P.O.W.E.R Loan (Providing Opportunities with Emission Reduction)
  - Retrofitting publicly-owned diesel vehicles using EPA grant funds

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Emission Reductions

Stationary Sources

- Federal actions
  - Transport Rule
  - Portland Cement MACT
  - Boiler MACT
- Local actions
  - ???
  - ???
  - ???

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Regulating Greenhouse Gases

- The Supreme Court determined that Greenhouse Gases (GHGs) are air pollutants covered under the Clean Air Act (CAA)
- EPA reviewed the science and found that GHGs endanger public health and welfare
- The first steps in regulating under the CAA include:
  - GHG reporting requirements
  - Incorporating GHGs into the Prevention of Significant Deterioration (PSD) and Title V programs
- GHGs become "subject to regulation" under the CAA on January 2, 2011

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Regulating Greenhouse Gases

- Sources become subject to the PSD and Title V programs based on emission thresholds for regulated pollutants
- The PSD/Title V Tailoring Rule sets thresholds for GHGs that are comparable to other pollutants
- Best Available Control Technologies (BACT) are still being identified for GHGs, but will likely rely on energy efficiency in many cases

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New Challenges

- Meeting NAAQS while simultaneously reducing GHGs will present new challenges
- Many traditional pollution control strategies can result in increased CO_2 emissions by:
  - Converting other pollutants into CO_2
  - Increasing energy use to remove other pollutants

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Moving Forward

- APCD will collaborate with stakeholders to develop multipollutant strategies to meet the NAAQS
- Impacts of these strategies on GHG emissions will be considered

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Poised for Progress

- Our community has a history of success in meeting air quality challenges
- Strong knowledge base exists among stakeholders and residents
- Attainment will require efforts by all
- The need for innovative solutions is urgent

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Resources

- www.louisvilleky.gov/APCD
- Air Quality Index
  - 502-574-3319
  - www.airnow.gov
- KAIRE – www.helptheair.org
- www.epa.gov/air
- www.air.ky.gov

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